FINAL ENVIRONMENTAL ASSESSMENT

for

REESTABLISHMENT OF THE NORTHERN APLOMADO FALCON

IN NEW MEXICO AND ARIZONA

June 2006

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1.0 PURPOSE OF AND NEED FOR ACTION

The U.S. Fish and Wildlife Service (Service) has prepared this Environmental Assessment (EA) to analyze potential effects to physical and biological resources and social and economic conditions that may result from the reestablishment of northern aplomado falcons (*Falco femoralis septentrionalis*) (falcon) in New Mexico and Arizona. This EA has been prepared pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA) as implemented by the Council on Environmental Quality (CEQ) regulations (40 CFR §1500, *et seq.*).

1.1 Description of the Proposed Action

In cooperation with its partners (e.g., The Peregrine Fund, Turner Endangered Species Fund, New Mexico Department of Game and Fish, Arizona Game and Fish Department, Bureau of Land Management, Department of Defense), the Service proposes to reestablish the falcon in its historical habitat in New Mexico and Arizona.

1.2 Purpose of the Action

The Service is one of two Federal agencies charged with the administration and implementation of the Endangered Species Act of 1973, as amended (Act). The goal of the Act is the recovery of listed species to levels where protection under the Act is no longer necessary. The falcon was extirpated throughout the United States by 1952. The Aplomado Falcon Recovery Plan includes a downlisting goal for the falcon that may be attainable between 2010 to 2030 if the Recovery Plan's recommended actions are implemented.

1.3 Need for the Action

This action is needed in order to reestablish falcons in suitable habitat in the Chihuahuan Desert grasslands within their historical range in New Mexico and Arizona. Once established as self-sustaining, these falcons would constitute an additional population in the United States that would contribute toward possible downlisting, or recovery and delisting, of the subspecies. Reintroduction of nestling falcons is recommended in the Aplomado Falcon Recovery Plan as an action needed to reach the downlisting goal of 60 pairs in the United States by the time period stated in the Recovery Plan of between 2010 and 2030 (Service 1990). Without reintroduction of nestlings, it is doubtful that falcons would recover in New Mexico and Arizona in the foreseeable future, similar to the situation in Texas prior to the reintroduction of captively reared falcons.

1.4 Background

1.4.1 Background Information on the Northern Aplomado Falcon. The northern aplomado falcon is one of three subspecies of the aplomado falcon and is the only subspecies recorded in the United States. This subspecies was listed by the Service as an endangered species on February 25, 1986 (51 FR 6686). This subspecies once extended from Trans-Pecos Texas, southern New Mexico, and southeastern Arizona to Chiapas and the northern Yucatan along the Gulf of Mexico, and along the Pacific slope of Central America north of Nicaragua (Service 1990). Falcons were fairly common in suitable habitat throughout these areas until the 1940s, but subsequently declined rapidly. From 1940 to the present in Arizona (Corman

1992), and from 1952 to 2000 in New Mexico (Meyer and Williams 2005), there were no documented nesting attempts by wild falcons. In 2001 and 2002, one pair of falcons nested in Luna County, New Mexico. This pair was unsuccessful in producing fledglings in 2001, but produced three fledglings in 2002. To date, the 2002 nest has been the only known successful falcon nest in either Arizona or New Mexico since 1952. Large areas of the southern New Mexico habitats most capable of supporting individual or breeding pairs of falcons have been formally surveyed for the presence of falcons during the past 10 years, and the recent falcons sighted in the action area appear to be transients and there has not been breeding activity at the one known site for several years (Griffin 2005; Howard 2005; Howard 2006a; Howard 2006b; Burkett 2006; Lister 2006a; Lister 2006b; Locke 2006).

The causes for decline of this subspecies have included widespread shrub encroachment resulting from control of range fires and intense overgrazing (Service 1986; Burnham et al. 2002), and agricultural development in grassland habitats used by the falcon (Heady 1987; Keddy-Hector 2000). Pesticide exposure was likely a significant cause of the subspecies' extirpation from the United States with the initiation of widespread DDT (dichloro-diphenyl-trichloroethane) use after World War II, which coincided with the falcon's disappearance (51 FR 6686, February 25, 1986). Falcons in Mexico in the 1950s were heavily contaminated with DDT residue, and these levels caused a 25 percent decrease in eggshell thickness (Kiff et al. 1980). Such high residue levels can often result in reproductive failure from egg breakage (Service 1990).

Collection of falcons and eggs may have also been detrimental to the subspecies in some localities. However, populations of birds of prey are generally resilient to localized collection pressure (Service 1990). Currently, long-term drought, shrub encroachment in areas of Chihuahuan grasslands, and the increased presence of the great-horned owl (*Bubo virginianus*), which preys upon the falcon, may be limiting recovery of this subspecies. In contrast to the above threats, falcons appear to be relatively tolerant of human presence. They have been observed to tolerate approach to within 100 meters (m) (328 feet (ft)) of their nests by researchers, have nested within 100 m (328 ft) of highways in eastern Mexico (Keddy-Hector 2000), and are frequently found nesting in association with well-managed livestock grazing operations in Mexico and Texas (Burnham et al. 2002). Burnham et al. (2002) concluded that falcons would be able to coexist with current land-use practices in New Mexico on the broad scale.

A Recovery Plan for the falcon was finalized June 8, 1990. The objective of the Aplomado Falcon Recovery Plan (Service 1990) is to ensure that the falcon is no longer threatened by habitat loss, pesticide contamination, or human persecution. The Recovery Plan states that implementation of the steps outlined in the plan could lead to downlisting of the falcon from endangered to threatened by 2010 to 2030. The criterion to reclassify the falcon to threatened status was tentatively identified as a minimum self-sustaining population of 60 pairs in the United States, and this status could be achieved by implementation of the following actions:

1. Evaluate, monitor, and minimize all threats, including pesticides and other contaminants, to extant populations of falcons.
2. Identify, maintain, and improve falcon habitat.

3. Reestablish the falcon in the United States and Mexico.
4. Conduct studies of habitat requirements, physiological ecology, and behavior of wild falcons.
5. Enhance public support for this recovery effort through educational programs.
6. Encourage National and international cooperation in carrying out these objectives.

This EA primarily addresses the third action listed above, re-establishment of falcons in the United States. Reintroduction of nestling falcons was identified by the Recovery Plan as a needed activity to reestablish falcon populations. Falcon reintroductions have been ongoing in Texas since 1985, on National Wildlife Refuges and on private land under Safe Harbor Agreements. As a result, these reintroductions have established at least 44 pairs of falcons in southern Texas and adjacent Tamaulipas, Mexico, where no pairs had been recorded since 1942 (Jenny et al. 2004). Moreover, pairs of reintroduced falcons began breeding in 1995, and to date have successfully fledged more than 244 young (Juergens and Heinrich 2005).

Substantial recolonization of habitats in Arizona and New Mexico by naturally occurring falcons in Chihuahua, Mexico, would likely take decades, if it occurred at all, because the reproductive rate of falcons in Chihuahua has typically been low. The low reproductive rate is possibly due to the effects of extended drought, and this population has not been expanding (Burnham et al. 2002; Jenny and Heinrich 2004). In addition, the majority of the breeding pairs in Chihuahua are clustered in close proximity to one another, and this cluster is approximately 120 to 135 miles (mi) (193 to 217 kilometers (km)) away from the southern New Mexico border (Howard 2006c).

The intense overgrazing that resulted in shrub encroachment in Chihuahuan Desert grasslands in New Mexico and Arizona has moderated, and there has been widespread implementation of improved range management techniques, including decreased stocking rates, stock rotation, prescribed burning, and other brush control methods (Archer 1994; Heady 1994; Burnham et al. 2002). In addition, the use of DDT was banned in the United States in 1972 and in Mexico in 2000. Therefore, falcon reintroductions in New Mexico and Arizona are now appropriate because habitat threats are continuing to be reduced in large areas of the Chihuahuan Desert grasslands. In addition, as described in this final rule, reintroduction sites will be carefully selected to optimize habitat suitability, and falcons are known generalists which means they will not be dependent on the availability of any particular type of prey.

Young et al. (2005) indicated that there are approximately 9,060 km^2 (5,600 mi^2), or 906,000 hectares (ha) (2,238,766 acres (ac)), of suitable habitat for falcons in New Mexico. We believe there is sufficient suitable habitat for falcon recovery in New Mexico. Montoya (1995) estimated that 1 falcon pair required 4,300 ha (10,625 ac) in Chihuahua, Mexico. If this size requirement for nesting territory also applies to the estimated quantity of suitable habitat in New Mexico, the State could support up to 200 pairs of falcons. Much of this suitable habitat occurs on Otero Mesa, Fort Bliss, White Sands Missile Range, the Jornada Plain (Armendaris Ranch and Jornada del Muerto), and in the southwestern corner, or boot-heel, of New Mexico south of Interstate 10. Although reintroductions will occur only in New Mexico, falcons would likely re-colonize suitable habitat in southeastern Arizona, further increasing the number of falcons inhabiting Chihuahuan Desert grasslands (Montoya 1995).

1.4.2 Geographic scope of the proposed action. This geographic area addressed in this EA is roughly depicted in Figure 1. The isolated patches depicted in this figure that extend into central and western Arizona are not within the historical range of the falcon, and therefore are not expected to be impacted by the alternatives. Museum and sighting records further indicate that the historical range of the falcon does not include any Tribal lands in either State (Service 1990); therefore, we do not expect any Tribal lands to be affected by this action. The historical range of the falcon encompasses a mix of private, State, and federally managed lands. We believe there is very low probability that falcons will populate lands outside of their historical range because those habitats would not be suitable for falcons. Thus far, we have not detected falcons inhabiting areas outside of their historical range.

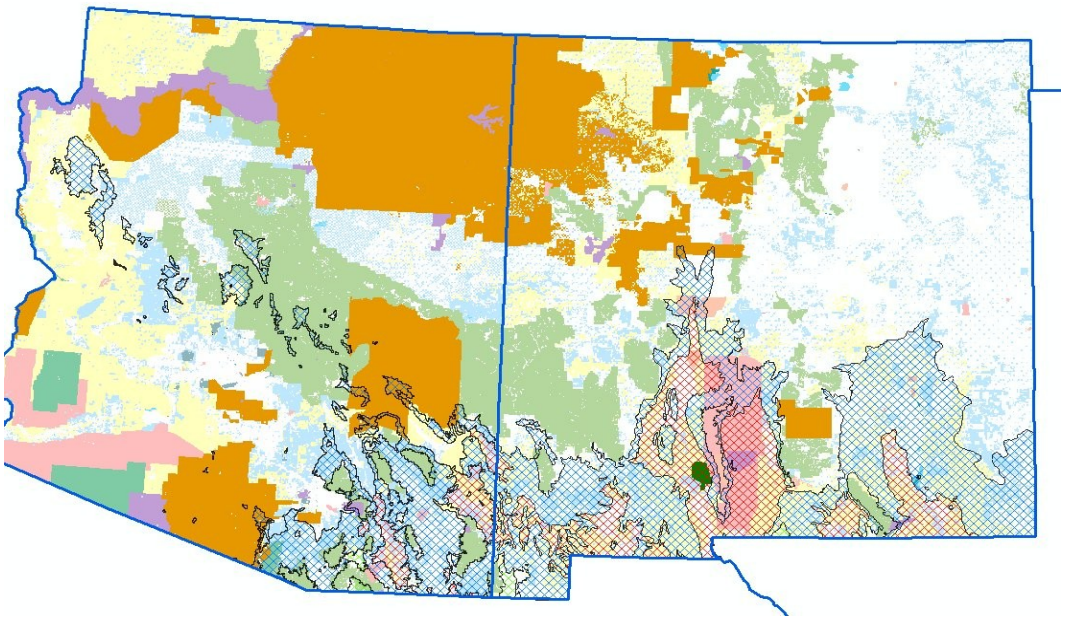

Figure 1. Chihuahuan Desert, stippled

1.4.3 Reintroduction Techniques. Several alternatives addressed in this EA include the reintroduction of captive-bred falcons to areas of New Mexico under a special 10(j) rule, in order to re-establish a population of falcons in Arizona and New Mexico. The rearing and reintroduction techniques that would be used to reestablish a falcon population have proven successful in establishing the wild population of falcons in southern Texas.

Reintroduction locations would be in New Mexico only and would be selected based on site visits by The Peregrine Fund's biologists in coordination with the Service, private landowners, and/or agency land managers. The State of Arizona supports re-establishment of falcons within the State, but for logistical reasons does support actual reintroductions in Arizona. Primary considerations for identifying falcon reintroduction sites would include areas: (1) Within or in proximity to suitable habitat, including open grassland habitats that have scattered

trees, shrubs, or yuccas for nesting and perching; (2) that support available prey for falcons (e.g., insects, small to medium-sized birds, rodents); (3) with minimal natural and artificial hazards (e.g., predators, open-water tanks, popular recreation areas) and potential hazards that can be minimized where practical; (4) with access for logistical support; (5) with a large extent of suitable habitat surrounding a reintroduction site and its proximity to other similar habitats; and (6) with a willing private landowner or agency land manager. For example, the Armendaris Ranch, north of Truth or Consequences, New Mexico, contains suitable habitat and has volunteered to be a reintroduction site (Henry 1995, Mader and Montoya 2001).

As in the Texas reintroductions, falcons released in New Mexico would be raised in The Peregrine Fund's captive propagation facility in Boise, Idaho. Falcons are released at "hack" sites which consist of a hack tower where birds are fed and from which they are released. A typical hack tower is shown in Figure 2.

Figure 2. A typical hack tower with attendants in Texas. (Ruth Mutch, photograph courtesy of The Peregrine Fund).

A falcon is considered to be "successfully released" when it is no longer dependent on food provided at the hack site. This process generally takes from 3 to 6 weeks (Jenny 2003). In New Mexico, falcons would be released in groups of 5 to 7 similarly aged nestlings at multiple hack towers, with the total anticipated annual release not to exceed 150 birds. Within a single year, up to 20 falcons could be released from one hack tower. The Service believes that these techniques, which have been implemented successfully in southern Texas, would also be successful in New Mexico. We would anticipate releasing falcons for 10 or more years.

Minimal destruction or modification of native habitats would be anticipated for construction, maintenance, or use of hack towers. Towers are placed along existing roads, including two-track roads. When locations of individual hacking towers are determined, surveys will be conducted for the State Historic Preservation Office (SHPO) compliance. In cases where vegetation must be disturbed, the area will be planted and/or seeded after the hack site has been

abandoned. Hack site attendants will either live on-site, or in nearby housing. Since no more than 150 falcons would be available for reintroduction each year, and if each tower was used once, then the maximum number of hack towers constructed in a year would be 30. Hack towers would remain as long as they are still being used (multiple seasons), but would be removed when no longer needed. This could range from a few months to a few years. The success of the southern Texas reintroductions suggests that this effort would have similar positive results in New Mexico for the recovery of the falcon.

1.4.4 The Section 7 Consultation Process. Section 7(a)(2) of the Act requires Federal agencies to consult with the Service to "insure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined ... to be critical." Each agency is required to use the best scientific and commercial data available. This consultation process is typically referred to as section 7 consultation. Section 7 of the Act does not apply to State, local, or private land unless there is a Federal nexus (i.e., Federal funding, authorization, permitting). The section 7 consultation process begins with a determination of effects on listed species and designated critical habitat, if applicable, by the Federal action agency. If the Federal action agency determines that there will be no effect on listed species or designated critical habitat, the proposed action is not altered or impacted by considerations under the Act. If the Federal action agency determines that listed species or designated critical habitat may be affected, then consultation with the Service is initiated.

Once it is determined that the proposed Federal action may affect a listed species or critical habitat, the Federal action agency and the Service typically enter into informal section 7 consultation. Informal consultation is an optional process for identifying affected species and critical habitat, determining potential effects, and exploring ways to modify the action to remove or reduce adverse effects to listed species or critical habitat (50 CFR §402.13). The informal section 7 consultation process concludes in one of two ways: 1) the Service concurs in writing that the proposed action is not likely to adversely affect listed species or critical habitat; or 2) adverse impacts are likely to occur and formal consultation is initiated.

Formal consultation is initiated when it is determined that the proposed Federal action is likely to adversely affect a listed species or critical habitat (50 CFR §402.14). Formal consultation concludes with a biological opinion issued by the Service on whether the proposed Federal action is likely to jeopardize the continued existence of a listed species or result in destruction or adverse modification of critical habitat (50 CFR §402.14[h]). Independent analyses are made under both the jeopardy and the adverse modification standards. A “non-jeopardy” or “no adverse modification” opinion concludes consultation and the proposed action may proceed under the Act. The Service may prepare an incidental take statement with reasonable and prudent measures to minimize take, and associated, mandatory terms and conditions that describe the methods for accomplishing the reasonable and prudent measures. Discretionary conservation recommendations may also be included in a biological opinion based on effects to species. Conservation recommendations, whether they relate to the jeopardy or adverse modification standard, are discretionary actions recommended by the Service. These recommendations may address minimizing adverse effects on listed species or critical habitat,

identify studies or monitoring, or suggest how action agencies can assist species under their own authorities and section 7(a)(1) of the Act. In a biological opinion that results in a jeopardy or adverse modification conclusion, the Service develops mandatory reasonable and prudent alternatives to the proposed action. Reasonable and prudent alternatives are actions that the Federal agency can take to avoid jeopardizing the continued existence of the species or adversely modifying critical habitat. The Service may develop reasonable and prudent alternatives that vary from slight project modifications to extensive redesign or relocation of the project, depending on the situations involved. Reasonable and prudent alternatives must be consistent with the intended purpose of the proposed action and they also must be consistent with the scope of the Federal agency's legal authority. Furthermore, the reasonable and prudent alternatives must be economically and technically feasible.

1.4.5 Provisions Under Section 10(j) of the Act. Congress made significant changes to the Act in 1982 with the addition of section 10(j), which provides for the designation of specific reintroduced populations of listed species as "experimental populations". We have always had the authority to reintroduce populations into unoccupied portions of a listed species' historical range when doing so would foster the conservation and recovery of the species. However, local citizens often opposed these reintroductions because they were concerned about placement of restrictions and prohibitions on Federal and private activities. Under section 10(j) of the Act, the Secretary of the Interior can designate reintroduced populations established outside the species' current range, but within its historical range as "experimental". Based on the best available information, we must determine whether an experimental population is "essential" or "nonessential" to the continued existence of the species. Regulatory restrictions are reduced under a "nonessential experimental population" or "NEP" designation.

Without the NEP designation, the Act provides that species listed as endangered or threatened are afforded protection primarily through the prohibitions of section 9 and the requirements of section 7. Section 9 of the Act prohibits the take of an endangered species. "Take" is defined by the Act as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Service regulations (50 CFR 17.31) generally extend the prohibition of take to threatened wildlife. Section 7 of the Act outlines the procedures for Federal interagency cooperation to conserve federally listed species and protect designated critical habitat. Section 7(a)(1) requires all Federal agencies to determine how to utilize their authorities to further the purposes of the Act to aid in conserving listed species. Section 7(a)(2) states that Federal agencies shall, in consultation with the Service, insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat, as discussed above.

For purposes of section 9 of the Act, individual species within a NEP area are treated as threatened regardless of the species' designation elsewhere in its range. Through section 4(d) of the Act, we have greater discretion in developing management programs and special regulations for threatened species than we have for endangered species. Section 4(d) of the Act allows us to adopt whatever regulations are necessary to provide for the conservation of a threatened species. The special 4(d) rule contains the prohibitions and exemptions necessary

and appropriate to conserve that species. Regulations issued under section 4(d) for NEPs are usually more compatible with routine human activities in the reintroduction area.

For the purposes of section 7 of the Act, we treat NEPs as threatened species when the NEP is located within a National Wildlife Refuge or a unit of the National Park System, and therefore section 7(a)(1) and the consultation requirements of section 7(a)(2) of the Act apply in these units. When NEPs are located outside a National Wildlife Refuge or unit of the National Park System, we treat the NEP as proposed for listing and only two provisions of section 7 would apply: section 7(a)(1) and section 7(a)(4). In these instances, NEPs provide additional flexibility because Federal agencies are not required to consult with us under section 7(a)(2). Section 7(a)(4) requires Federal agencies to confer (rather than consult) with the Service on actions that are likely to jeopardize the continued existence of a proposed species. The results of a conference are advisory in nature and do not restrict agencies from carrying out, funding, or authorizing activities.

Section 10(j) is designed to increase our management flexibility by allowing us to treat falcons as threatened, regardless of the species' designation elsewhere in its range. Threatened designation gives the Service more discretion in developing and implementing management programs and special regulations for falcons, and the development of any regulations we consider necessary to provide for the conservation of a threatened species. In situations where we have experimental populations, certain section 9 prohibitions would no longer apply. The special rules written for this proposed action include defining allowable take of falcons.

The Act defines "incidental take" as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity such as military training, livestock grazing, recreation, and other activities that are in accordance with Federal, Tribal, State, and local laws and regulations. A person would be able to take a falcon within the NEP area provided that the take is unintentional and was not due to knowing, intentional, or negligent conduct. Unintentional take would be considered “incidental take”, and would be authorized under the final rule. Thus, take of falcons which is not intentional and is incidental to otherwise lawful activity would be permitted. Applying information obtained from the reintroductions in south Texas, we expect levels of incidental take would be low since the reintroductions should be compatible with existing land use practices in the area (Burnham et al. 2002; Bond 2005). Intentional take such as shooting, knowingly destroying a nest, or knowingly harassing falcons from an active nest for purposes other than authorized data collection, would not be permitted.

If we had evidence of knowing (i.e., intentional) take of a falcon, we would refer matters to the appropriate authorities for investigation. Knowing, or intentional take, refers to actions such as shooting, purposeful destruction of active nests, or harassment of falcons from active nests for purposes other than authorized data collection, would not be permitted. Any take of a falcon, whether incidental or not, would be required to be reported to the local Service Field Supervisor.

Before authorizing the release of any population, the Secretary shall determine, on the basis of the best available information, whether or not such a population is essential to the continued existence of an endangered species or a threatened species.

1.4.6 Safe Harbor Agreements. Safe Harbor Agreements are voluntary arrangements between the Service and cooperating non-Federal landowners that benefit endangered and threatened species while assuring landowners that no additional restrictions would be imposed as a result of the reintroduction and reestablishment a species. Following development of an agreement, the Service issues an "enhancement of survival" permit under section 10(a)(1)(A) of the Act to authorize any necessary future incidental take to provide participating landowners with assurances that no additional restrictions will be imposed as a result of their conservation actions.

1.5 Decisions to be Made

This EA is intended to assist the Service in determining how to reestablish the subspecies in suitable habitat in Chihuahuan Desert grasslands within their historical range in New Mexico and Arizona. The Service will also decide whether or not the environmental consequences of any of the alternatives would be significant and whether or not to prepare a Finding of No Significant Impact or an Environmental Impact Statement. If the determination is made that the proposal does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102(2)(c) of NEPA, then an Environmental Impact Statement is not required.

2.0 ALTERNATIVES, INCLUDING THE NO ACTION ALTERNATIVE

2.1 Scoping Process

In 2003, the Service's New Mexico Ecological Services Field Office (NMESFO) solicited public input on determining the scope of issues to be addressed, identifying the major issues related to falcon re-establishment, and developing appropriate alternatives. Public scoping meetings were conducted in 2003 as follows: On February 3 in Douglas, Arizona, and in New Mexico, on February 4 in Deming, February 5 in Alamogordo, February 6 in Carlsbad, and February 11 in Socorro. In addition, in 2005, two public hearings were conducted in New Mexico during the second comment period on the proposed rule (70 FR 6819, February 9, 2005) and draft EA, on October 11 in Las Cruces and October 13 in Albuquerque. Six scientific peer reviewers were selected, based on their professional qualifications, to review this EA and proposed rule, and were contacted to request their comments on the documents. Peer reviews were obtained from three of the six requested peer reviewers (see section 7.3).

Table 1 provides a summary of the written and oral issues received during scoping. Overall, affected State agencies, landowners, and land managers have indicated support for falcon reintroductions, provided the falcon experimental population is established as a NEP, and land-use activities in the NEP area are not constrained without the consent of affected landowners.

Table 1. Issues Identified During the Scoping Process for Northern Aplomado Falcon Re-establishment in New Mexico and Arizona

Issue Category	Number of Comments with this Issue
Supported 10(j) reintroductions, in general	50
Supported 10(j) reintroductions, entire State of New Mexico	1
Supported 10(j) reintroductions, for select areas	1
Supported reintroductions, but not under 10(j)	1
Supported reintroductions in general	2
Supported reintroductions in general, but concerned about habitat condition and protection	3
Supported unaided recolonization; no reintroductions	8
Concerned about the survival of birds reintroduced during a drought period	2
Concerned about mixing genetics between reintroduced and wild falcons	3
Concerned that habitat in New Mexico and Arizona is not suitable	7
Concerned that habitat will not be protected	6
Questioned use of 10(j) when falcons have been documented breeding in New Mexico	1
Concerned about land-use restrictions on agriculture	41
Concerned about land-use restrictions on oil and gas development	1
Suggested that reintroduced falcons be marked to distinguish them from wild falcons	1

2.2 Alternatives

The four alternatives considered include the following: 1) Alternative A, the No Action Alternative; 2) Alternative B, the Proposed Action and Preferred Alternative, is reintroducing falcons in New Mexico and designating the falcon as a 10(j) NEP throughout all of New Mexico and Arizona; 3) Alternative C is reintroducing falcons in New Mexico and designating falcons as a 10(j) NEP in all of Arizona and portions of New Mexico; 4) Alternative D is reintroducing falcons in New Mexico with Safe Harbor Agreements on private lands, and 5) Alternative E is reintroducing falcons in New Mexico without any 10(j) designation or Safe Harbor Agreements.

2.3 Alternative A, No Action Alternative: Natural Falcon Recolonization Without Reintroductions

The No Action Alternative would continue existing falcon management without reintroductions. In this alternative, falcon recovery would be dependent on falcons that might disperse into New Mexico and Arizona from Mexico and/or Texas. This alternative would

continue to ensure full endangered species status under the Act for any falcon within the States of New Mexico and Arizona. Unlike the Preferred Alternative, Federal agencies would be required to consult with the Service pursuant to section 7(a)(2) of the Act, and non-Federal actions that could result in incidental take of falcons would require a permit pursuant to section 10 of the Act. Harm and harassment of falcons would continue to be prohibited, except for take exempted through current processes, such as incidental take permitted under sections 7 and 10 of the Act. The No Action Alternative serves as a baseline for analyzing effects of action alternatives.

2.4 Alternative B, Preferred Alternative: Reintroduce falcons into suitable habitat in New Mexico, with designation of falcons in all of New Mexico and Arizona as a NEP.

The Preferred Alternative is to reintroduce falcons into suitable habitat in New Mexico, after designation of falcons in all areas of New Mexico and Arizona as a NEP population under section 10(j) of the Act. The proposed experimental falcon population would be designated "nonessential, experimental" because: 1) There are established populations in Mexico and a rapidly expanding population in south Texas; 2) reintroductions will continue in west Texas: 3) the Boise, Idaho, captive population is producing enough offspring to maintain the captive flock and provide falcons for release: and, 4) the possible failure of this action would not appreciably reduce the likelihood of survival of the subspecies in the wild. We also believe the NEP designation lessens land-use restrictions associated with the Act, which makes the establishment of falcons in New Mexico and Arizona less controversial to private landowners and agency land managers, and should result in more cooperative falcon conservation efforts with stakeholders and a larger number of release sites and more widespread reintroductions. Therefore, the use of the NEP should be the fastest way to both (1) successfully establish a falcon population in New Mexico and Arizona, and (2) aid in recovery and eventual delisting of the falcon. Thus, we have concluded that this experimental population would be nonessential to the continued existence of the species according to the provisions of section 10(j) of the Act for the following reasons:

(a) With at least three populations, one in eastern Mexico, a second in northern Chihuahua, Mexico, and a third becoming established in southern Texas, the experimental population would not be essential to the continued existence of the species. The threat of extinction from a single catastrophic event has been reduced by a gradual increase of the southern Texas and captive populations. Thus, loss of the experimental population would not appreciably reduce the likelihood of falcon survival in the United States; and,

(b) Any birds lost during the reintroduction attempt could be replaced through captive breeding.

Production from the extant captive flock is already sufficient to support the release of birds that would occur under this preferred alternative, in addition to continued releases in west Texas (Juergens and Heinrich 2005).

2.5 Alternative C: Reintroduce falcons into suitable habitat in New Mexico, with designation of falcons in all of Arizona and most of New Mexico, except Hidalgo, Grant, and Luna counties, as a NEP.

This alternative is similar to Alternative A, the Preferred Alternative, except that the NEP area is restricted to all of Arizona and most of New Mexico, with the exception of Hidalgo, Grant, and Luna counties. These are the counties surrounding the only known pair of breeding falcons in either State since the 1950s. Falcons would not be reintroduced in this excluded area, and any falcon found there, regardless of origin, would be considered endangered and receive the full protection of the Act.

This alternative is a combination of Alternatives A and B. The conditions outlined in Alternative B would apply to the NEP area, and the conditions of Alternative A would apply to Hidalgo, Grant, and Luna counties in New Mexico. Reintroductions of captively bred falcons would occur in the NEP area, and all falcons found within the NEP area would be treated as threatened or proposed as described above. Again, regulatory restrictions would be lessened in the NEP area. Falcons located in Hidalgo, Grant, and Luna counties in New Mexico would continue to receive the endangered species status protections under the Act.

2.6 Alternative D: Reintroduce falcons into suitable habitat in New Mexico with Safe Harbor Agreements.

Under Alternative D, the Service and The Peregrine Fund would reintroduce falcons on private lands after the preparation of Safe Harbor Agreements with willing private landowners. When falcons released on private lands recolonize Federal lands, Federal land managers would continue to be required to consult with the Service on actions that may affect falcons, as in Alternative A.

2.7 Alternative E: Reintroduce falcons into suitable habitat in New Mexico.

Under Alternative E, falcons would be reintroduced without a 10(j) designation or Safe Harbor Agreements. All falcons in New Mexico and Arizona would be treated as endangered, and the prohibitions against take, consultation requirements of section 7(a)(2), and permitting for take through sections 7 and 10 of the Act would be in place for all falcons in New Mexico and Arizona.

2.8 Comparison of Alternatives

Table 2 summarizes the potential effects or characteristics of the alternatives on the environment. Potential effects on resources are summarized from the analyses presented in section 4 of this EA.

Table 2. Comparison of potential effects of alternative actions for the reestablishment of the Aplomado falcon in New Mexico and Arizona as compared to existing conditions, by resource category.

	Applicability of Consultation under Section 7(a)(2)	**Impacts to Land Use Practices (Grazing, Oil and Gas Development, Military Training, and Recreation)**	**Effectiveness in Meeting the Purpose and Need**
No Action (Alternative A)	Section 7 consultation required for federally supported actions	No Change	Not Effective
Alternative B (Designate all of NM and AZ as NEP)	Section 7 consultation would not be required for federally supported actions, except when on National Park Service or National Wildlife Refuge Lands. Conferencing within the NEP would be required	Minimal	Effective
Alternative C (Designate portions of NM and all of AZ as NEP)	Same as Alternative B	Minimal	Minimally Effective
Alternative D (Reintroductions using Safe Harbor Agreements)	Same as Alternative A	No Change	Minimally Effective
Alternative E (Voluntary Reintroductions)	Same as Alternative A	No Change	Not Effective

3.0 AFFECTED ENVIRONMENT

The affected environment consists of agency and private land-use practices, biotic, aesthetic, economic, and cultural components of the Chihuahuan Desert grasslands that may be affected by the proposed action. There are two geographic areas addressed in this document. The 10(j) area is the two-State region under consideration for the NEP: All of Arizona and New Mexico for Alternative B, and the same area excluding the southwest corner of New Mexico for Alternative C. The action area for the affected environment consists of Chihuahuan Desert grasslands in Arizona and New Mexico, which includes within it the historical range of the falcon (Figure 1). We believe that it is very unlikely that falcons will reside in areas outside of their historical range as their behavioral ecology is not adapted for those environments and they have not been found resident there. Therefore, the affected environment and impact analysis are limited to Chihuahuan Desert grasslands.

A large amount of land within the action area is administered by State and Federal agencies, including the States of Arizona and New Mexico, Bureau of Land Management (BLM), and Department of Defense (DOD). In addition, a large proportion of land within the action area is

privately owned. Tribal lands make up a very small percentage of the total land ownership in the Chihuahuan Desert grasslands. Tribal lands are not within the historical range of the falcon (Service 1990); therefore, the proposed action and its alternatives should have no effect on any Tribes. In addition, within the action area there are numerous Areas of Critical Environmental Concern (ACEC) on BLM lands and designated Wilderness Areas on public lands. Table 3 shows the approximate land ownership areas and percentages of the total area in the Chihuahuan Desert grasslands

Table 3. Land ownership in the Chihuahuan Desert grasslands.

Ownership	Acres in Arizona	Percent	Acres in New Mexico	Percent	Total Acres
Bureau of Land Management	947,316	3	8,451,167	29	9,398,482
Bureau of Reclamation	0	<1	39,480	<1	39,480
Department of Agriculture	0	<1	109,468	<1	109,468
Department of Defense	83,551	<1	2,032,114	7	2,115,665
Department of Energy	0	<1	10,245	<1	10,245
U.S. Forest Service	481,858	2	106,976	<1	588,834
U.S. Fish and Wildlife Service	115,844	<1	229,404	1	345,248
Tribal	384,629	1	44,790	<1	429,419
National Park Service	19,881	<1	168,016	1	187,897
Private	2,302,722	8	6,875,714	24	9,178,436
State	2,560,264	9	3,682,961	13	6,243,225
State Game and Fish	2,962	<1	33,974	<1	36,936
State Parks	605	<1	5,956	<1	6,560
Other	333	<1	0	0	333
Totals	6,899,964	24	21,790,264	76	28,690,228

Within the 28,690,228-ac (11,690,228 ha) action area, there may be effects to the following elements of the environment:

3.1 Land Use

Land uses within the action area that may be affected by the proposed action and its alternatives are grazing; oil, gas, and mineral production; military training; and recreation.

3.1.1 Grazing. Livestock grazing occurs on private, State, and Federal lands and is likely the most extensive land use in the action area. Livestock grazing has occurred for up to 400 years in portions of New Mexico and Arizona. In New Mexico, on lands managed by the BLM Field Offices in Las Cruces and Carlsbad, New Mexico (an area that roughly corresponds to the action area in New Mexico), there are approximately 4.9 million ac (2.0 million ha), 1,249 allotments, and 759,664 Animal Unit Months (AUM) (BLM 2003; Mader and Montoya 2001). In Arizona, the Safford BLM Field Office (Southeastern Arizona) manages 265 allotments on approximately 1.6 million ac (0.65 million ha) (http://www.az.blm.gov/fo/index.htm).

Stocking rates and duration of use are determined by the landowner or agency land manager. On private lands, the landowner determines the stocking rates, season of use and target range condition. On State lands, stocking rates and utilization are managed by the Permittees consistent with leases from the State. On Federal lands, grazing management is promulgated through specific laws and regulations of the respective agencies.

3.1.2 Oil, Gas, and Mineral Production. There are oil, gas, and mineral resources in portions of the action area on lands managed by BLM, DOD, the States, and private entities. Mineral resources include primarily oil, gas, copper, aggregate, and silver. The southwestern portion of New Mexico and Southeastern Arizona contain most of the locatable hard rock minerals in the action area. The BLM reports 10 claims from the Carlsbad Field Office (FO), 339 from the Socorro FO, 540 from the Roswell FO, and 3,892 from the Las Cruces FO (M. Howard, BLM, pers. comm. 2003), and over 4,000 active mining claims are located within the Safford BLM FO boundaries. The Morenci mine, operated by Phelps Dodge Corporation, is the largest copper-producing operation in North America. In addition to copper, other minerals mined include zeolite, gypsum, diatomaceous earth, and silver. (http://www.az.blm.gov/sfo/index.htm). Table 4 lists Oil, Gas, and Mineral Production in Arizona.

Table 4. Arizona Oil, Gas, and Mineral Production. From Arizona Department of Mines and Oil, Gas, and Mineral Resources at http://www.admmr.state.az.us/deptpub.htm

Commodity	Quantity, in Thousands of Tons	Value
Clay	withheld	withheld
Copper	1,360	$2,930,000,000
Gemstones	na	3,220
Gold	withheld	withheld
Sand and Gravel	44,500	200,220,000
Silver (troy ounces)	5635,000	22,300,000
Stone - crushed	6,700	38,000,000
Coal	11,723	279,000,000
Other	na	325,000,000
Total	--	**$3,797,740,000**

Within the New Mexico portion of the action area, the primary leasable minerals are oil, gas, and potash (BLM 2000). Current oil and gas production in the action area occurs mostly in Lea, Eddy, and Chaves counties. The oil and gas production from these counties is shown in Table 5. Otero Mesa (Otero County) has moderate potential for oil and gas development and the Nutt grasslands (Sierra County) have low potential (BLM 2003). There are approximately 280,000 acres of potential falcon habitat in these areas (BLM 2003). The BLM anticipates approximately 8,050 km (5,000 mi) of seismic operations, and 2,500 ac (1,102 ha) of exploratory and production construction within Otero and Sierra counties.

Table 5. Oil and Gas Production. The New Mexico Oil and Gas Association reported this information for New Mexico counties in 2000. Taken from http://www.nmoga.org/nmoga/production.html

New Mexico Gas and Oil Produced in 2000		
County	Million Cubic Feet of Gas	Barrels of Oil:
Eddy	282,543,725	21,050,746
Lea	219,801,987	40,043,655
Chaves	20,063,393	696,025

3.1.3 Military Activities. Military training is an important land use within the action area. White Sands Missile Range, Fort Bliss Army Installation, Holloman Air Force Base, and Fort Huachuca Army Installation cover more than 3.3 million ac (1.3 million ha) of land in the action area. This is over 10 percent of the total land base that the DOD manages. Of the 54 million ac (22 million ha) in the Chihuahuan Desert, almost one-half (24.3 million ac (9.8 million ha)) is under Federal management, and about 13 percent of those lands are DOD managed (Leslie et al. 1996). Military land uses within the action area include training and testing activities by all branches of the DOD. The operational readiness of active duty, reserve, and National Guard units is maintained through these testing and training activities. Ground-based training includes classroom training, as well as field training exercises involving various combinations of field operations, communications, command and control, simulated enemy contact, and weapons systems firing and testing. The Army and Air Force operate firing and bombing ranges for testing and training of small caliber guns, artillery and tank firing, aircraft-delivered weapons, and ground-launched rockets and missiles. In addition to land bases, the action area provides important airspace for all types of military aircraft training from United States airbases and some foreign countries. Much of this airspace is over non-DOD lands. Military aviation training activities in the action area include low-level flights along designated military training routes and flight operations within military operating areas and restricted airspace. In general, these military training routes consist of high-speed corridors connecting bases to military operating areas and restricted areas, where the ranges are located.

3.1.4 Recreation. The action area includes numerous public lands (e.g., National forests, National parks, National monuments, National recreation areas, wilderness areas, State parks, State wildlife management areas, scenic highways, and nature trails) that provide public access for recreational opportunities, in addition to any opportunities that may occur on private lands. These provide recreational opportunities, such as hiking, camping, rock hounding, hunting, wildlife viewing, photography, and falconry. Segments of the public have expressed their desire for the designation of additional wilderness areas (e.g., Otero Mesa).

3.2 Biotic

3.2.1 Vegetation. The historic range of the falcon in New Mexico and Arizona vegetative communities occurs within the Chihuahuan Desert, which, if taken simplistically, is comprised

of three basic community types; desert scrub, desert grasslands, and woodlands. Falcons are primarily associated with grasslands, although small patches of scrub and woodlands may be used. Chihuahuan grasslands are best developed on plateaus, rolling hills, and basin floors where the soils are relatively deep. Grama grasses (*Bouteloua* spp.), are the dominant species in uplands, with wetter areas having a predominance of tobosa grass (*Pleuraphis mutica*). Chihuahuan Desert scrub habitats in New Mexico and Arizona are dominated by creosotebush (*Larrea tridentata*), with agave (*Agave lechuguilla*), sotol (*Dasylirion* spp.), yucca (*Yucca* spp.) mimosa (*Mimosa* spp.), acacia (*Acacia* spp.), mesquite (*Prosopis* spp.), mariola (*Parthenium incanum*), fourwing saltbush (*Atriplex canescens*), tarbush (*Flourensia cernua*), javelinabush (*Microrhamnus ericoides*), present. Riparian woodlands, and arroyo habitats, containing such trees as cottonwoods (*Populus* spp.), willows (*Salix* spp.), salt cedar (*Tamarix* spp.), and sycamores (*Platanus* spp.) provide important woody tree and brush species for falcon nesting.

Young et al. (2002) described falcon habitat in Chihuahua, Mexico as having vegetative basal cover ranging from 43 and 48 percent (nesting and detection areas, respectively), with tobosa and blue grama grasses being the dominant grass species. Grass height was 8.4 inches (21.3 centimeters (cm)) in nesting areas and 7.8 inches (19.8 cm) in perching areas. Shrub density was 105 and 253 shrubs/ac in nesting and detection habitat, respectively. Dominant shrubs were longleaf ephedra (*Ephedra trifurca*), acacia, tarbush, honey mesquite (*Prosopsis glandulosa*), soaptree yucca, and creosote bush. Biomass, measured after nest site selection, was 744 and 862 pounds/acre in nesting and detection areas, respectively.

3.2.2 Fish and Wildlife. Large and medium sized mammals inhabiting the action area include elk (*Cervus elaphus*), mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), coyote (*Canis latrans*), swift fox (*Vulpes velox*), ringtail (*Bassariscus astutus*), hooded skunk (*Mephitis macroura*), and javelina (*Peccary angulatus*), with infrequent occurrences of bear (*Ursus americanus*), mountain lion (*Felis concolor*), and desert bighorn sheep (*Ovis canadensis nelsoni*). Smaller mammals include desert shrew (*Notisorex Crawford*), desert cottontail (*Sylvilagus audubonii*), Mexican ground squirrel (*Spermophilus mexicanus*), yellow-faced pocket gopher (*Cratogeomys castanops*), Nelson's pocket mouse (*Chaetodipus nelsoni*), and Merriam's kangaroorat (*Dipodomys merriami*). Several bat species are found in the action area including western mastiff (*Eumops perotis*) and Yuma myotis (*Myotis yumanensis*).

Bird species found in the action area include turkey (*Meleagris gallopavo*), Gambel's quail (*Callipepla gambelii*), scaled quail (*Callipepla squamata*), bronzed cowbird (*Molothrus aeneus*), Baird's sparrow (*Ammodramus bairdii*), Chihuahuan raven (*Corvus cryptoleucus*), Harris hawk (*Parabuteo unicinctus*), Inca dove (*Columbina inca*), pyrrhuloxia (*Cardinalis sinuatus*) mourning dove (*Zenaida macroura*), sharp-shined hawk (*Accipiter striatus*), praire falcon (*Falco mexicanus*), red-tailed hawk (*Buteo jamaicensis*), Great-horned owl (*Bubo virginianus*), western screech owl (*Otus kenniottii*), long-eared owl (*Asio otus*), and northern pygmy owl (*Glaucidium californicum*).

Amphibians found in the action area include Couche's spadefoot toad (*Scaphiopus couchii*), western spadefoot toad (*Spea hammondi*), Rio Grande leapord frog (*Rana berlandieri*), Great

Plains toad (*Bufo cognatus*), spotted chirping frog (*Eleutherodactylus guttilatus*), red-spotted toad (*Bufo punctatus*), and Mexican mud turtle (*Kinosternon integrum*).

Reptiles found in the action area include the Texas banded gecko (*Coleonyx brevis*, desert springtail (*Sceloporus magister*), little striped whiptail (*Sceloporus magister*), crevice spiny lizard (*Sceloporus poinsettia*), Texas horned lizard (*Phrynosoma* cornutum), little striped whiptail (*Cnemidophorus inoratus*), plateau spotted whiptail (*Cnemidophorous velox*), checkered whiptail (*Cnemidophorus tessellates*), Texas-Pecos rat snake (*Bogertophis subocularis*), gray-banded king snake (*Lampropeltis alterna*), Big Bend patch-nosed snake (*Salvadora deserticola*), rock rattlesnake (*Crotalus lepidus*), and black-tailed rattlesnake (*Crotalus molossus*).

Fish and wildlife resources in the action area potentially affected by the proposed action include those animals that are potential falcon prey, predators, or competitors. Montoya (1995) found the most important falcon food species to be meadowlarks (*Sturnella* spp.), common nighthawks (*Chordeiles minor*), northern mocking birds (*Mimus polyglottos*), western kingbirds (*Tyrannus verticalis*), brown-headed cowbirds (*Molothrus ater*), Scott's orioles (*Icterus parisorum*) and mourning doves ((*Zenaida macroura*). In an evaluation of potential falcon habitat in Arizona, the Arizona Department of Game and Fish identified the following species as potential prey: Scaled quail (*Callipepla squamata*), Gambel's quail (*Callipepla gambelii*), white-winged dove (*Zenaida asiatica*), mourning dove (*Zenaida macroura*), common ground-dove (*Columbina passerina*), yellow-billed cuckoo (*Coccyzus americanus*), Gila woodpecker (*Melanerpes uropygialis*), ladder-backed woodpecker (*Picoides scalaris*), northern flicker (*Colaptes auratus*), ash-throated flycatcher (*Myiarchus cinerascens*), Cassin's and western kingbird (*Tyrannus vociferans* and *verticalis*), horned lark (*Eremophila alpestris*), Botteri's sparrow (*Aimophila botterii*), Cassin's sparrow (*Aimophila cassinii*), rufous-crowned sparrow (*Aimophila ruficeps*), lark sparrow (*Chondestes grammacus*), lark bunting (*Calamospiza melanocorys*), chestnut-collared longspur (*Calcarius ornatus*), eastern and western meadowlark, brown-headed cowbird, and orioles (*Icterus* spp.) (Corman 1992). In addition, loggerhead shrike (*Lanius ludovicianus*), swallows (family Hirundinidae), Inca dove (*Columbina inca*), nighthawks, wrens (family Troglodytidae), thrushes (family Turdidae) , mockingbirds and thrashers (family Mimidae), pipits (Anthus sp.), warblers (family Parulidae), tanagers (*Piranga* spp.), sparrows (family Emberizidae), cardinals (family Cardinalidae), blackbirds (family Icteridae), and finches (family Fringillidae) are potential falcon prey species.

Falcon predators include great-horned owls (*Bubo virginianus*), crows, ravens and jays (family Corvidae), coyote (*Canis latrans*), and bobcats (*Lynx rufus*) (Montoya et al. 1997). Prairie falcons (*Falco mexicanus*), loggerhead shrike and Swainson's hawk (*Buteo swainsoni*) may compete with falcons for food.

3.2.3 Federal endangered and threatened species. The following listed species may be encountered in habitats used by falcons located in the action area: Lesser long-nosed bats (*Leptonycteris curasoae yerbabuenae*), Mexican long-nosed bats (*Leptonycteris nivalis*), southwestern willow flycatchers (*Empidonax traillii extimus*), and jaguar (*Panthera onca*).

3.3 Aesthetics

The aesthetic value of the Chihuahuan Desert is difficult to quantify, but stems from the open spaces, clear skies, subtle colors and dramatic landscapes. In addition, the unique biotic communities and wildlife add to the aesthetic values of the Chihuahuan Desert. Landscapes located within the action area include volcanic formations, escarpments, foothills, mesas, riparian areas, alkali flats, and developed areas.

3.4 Social and Economic

3.4.1 Grazing. Grazing provides the greatest amount of revenue collected for public land use, $794,176.19 for 649,915 Animal Unit Months (AUM) in Otero and Sierra counties (1997 data, BLM 2003).

The following summary is from the BLM 2000, Final Statewide Resource Management Plan Amendment/Environmental Impact Statement, New Mexico Standards for Public Land health and Guidelines for Livestock Management (page 3-56). Although it addresses the entire State of New Mexico, and not the action area solely, we believe it demonstrates the economic value of livestock grazing, and oil and gas development:

> Since cattle prices follow a cycle it was determined that a 12-year (1985 through 1996) average of values per AUM would encompass a full price cycle between two lows in the cycle. The value of production per AUM and the number of AUMs were run in the NMSU [New Mexico State University] New Mexico Input-Output model to predict the total economic losses to the New Mexico economy. In 1992, the cattle industry fared well, it was an extremely wet year, and cattle prices were at a high. If this was the year used as input data, the economic situation would be overestimated. The other extreme would be to use 1996, when New Mexico was in a drought and cattle prices were at a low. This year would underestimate the economic situation. Although sheep and goats do not follow the same price cycle as cattle, values per AUM and numbers of AUMs were used for the same 12 year period. Because there are a greater number of cattle AUMs than sheep and goat AUMs, the cattle cycle was used. In 1992 the range cattle industry directly provided almost $314 million in economic activity to the State of New Mexico, including $19 million in personal income and 2,632 Full Time Equivalents (FTEs). This industry provided total (direct and indirect) economic activity of over $620 million, of which almost $97 million was in personal income from 5,500 FTEs. The sheep industry directly provided $10 million in economic activity for the State of New Mexico, which included $976,000 in personal income and 299 FTEs. Indirectly the industry provided $22 million in economic activity, $3.5 million in personal income and 192 FTEs.

3.4.2 Oil and Gas. The same BLM 2000 report describes mineral assets in New Mexico in the following manner:

> Based on filings over the last 10 years, an average of just under 900 permits to drill is received annually by BLM Field Offices for Federal lands in New Mexico. During 1995, a little over 953 billion cubic feet of natural gas, 27.6 million barrels of oil, and

9.2 billion cubic feet of carbon dioxide were produced from Federal leases in New Mexico. The total sales value of this production was approximately $1,579,000,000.

3.4.3 Military. White Sands Missile Range, Holloman Air Force Base, and Fort Huachuca contribute to the economy in nearby communities. Military employment from White Sands Missile Range, Fort Bliss, and Holloman Air Force Base was just over six percent of the 1995 total full and part-time employment of Dona Ana and Otero counties, New Mexico (U.S. Army 2000).

3.4.4 Recreation. The action area provides an abundance of recreational opportunities. Many avid and casual bird watchers visit the action area each year. Hunters pursuing big game and upland birds, all-terrain vehicle users, and rock hounds help the economy of local communities. Falconers use the action area to exercise their birds and hunt. The economic revenue associated with recreation in Otero and Sierra counties was $14,561.63 in 1997, and hunting-related wildlife revenues for guides and outfitters was $66,664 (BLM 2003). The economic contribution to the local economy from recreation has not been determined.

3.5 Cultural

Cultural elements include physical structures and places, as well as activities, and beliefs. The culture within the action area is the result of Tribal, Mexican, and European cultures interacting for centuries. More than 550 archaeological and historical sites were identified in surveys conducted by BLM over the last 13 years on public lands in Otero and Sierra counties (BLM 2003). This results in an average of 19 sites per square mile, with an estimate of more than 50,000 archaeological and historical sites on public lands within Sierra and Otero counties.

4.0 ASSESSMENT OF EFFECTS

This section describes aspects of the environment that may potentially be impacted by the proposed action and its alternatives. Resource categories addressed in the analysis were selected based on issues identified during the scoping process and the public comment periods.

Implementation of the proposed action will not have significant direct, indirect, or cumulative effects on any of the following elements in the affected area because none of the alternatives would result in an appreciable change to any of these aspects of the natural and physical environment: air quality, ACECs, environmental justice, farm lands, floodplains, invasive or non-native species, hazardous or solid waste, water quality, wetlands/riparian zones, Wild and Scenic Rivers, or designated Wilderness Areas.

4.1 Alternative A, No Action Alternative: Natural Falcon Recolonization Without Reintroductions

4.1.1 Land Use. This alternative would continue the current situation. Consultations under section 7(a)(2) of the Act would continue to be required for all Federal actions that may affect falcons. However, without falcons resident in the action area, formal consultations would not be numerous. The terms and conditions of the few existing biological opinions on the falcon in

New Mexico would remain in place and up to the present have not restricted land use management (Lewis 2004). Management actions would not change from the current situation for grazing, energy development, and military operations. Incidental take on private and public lands could be permitted through either section 7 or 10 of the Act.

4.1.2 Biotic. Continuing section 7(a)(2) consultations may continue to slightly benefit the biotic community by increasing the focus on falcon habitat restoration during livestock management planning, vegetation manipulation projects, energy development projects, and military operations. These actions would also slightly benefit native plants and animals. However, these benefits would not be significant because the recent falcons sighted in the action area appear to be transients, and there has not been breeding activity at the one known site for several years, therefore, formal consultations would be very limited.

4.1.3 Aesthetic. No change would be expected to the aesthetic environment.

4.1.4 Social and Economic. Continuing section 7(a)(2) consultations may continue to slightly reduce the opportunity to maximize profits from grazing or oil and gas development because they can increase the cost of planning, operation, and maintenance. However, these impacts would not be significant because formal consultations would be very limited, as discussed above.

4.2 Alternative B, Preferred Alternative: Reintroduce falcons into suitable habitat in New Mexico, with designation of falcons in all of New Mexico and Arizona as a NEP.

4.2.1 Land Uses. There would be minimal changes to land use as a result of this alternative. Falcon reintroduction is compatible with existing land uses (e.g., grazing, oil and gas development). Direct effects are most likely where hacking sites are located but will be minimal as these are small areas utilized for short periods of time with willing land owners or agency land managers.

Additional effects of this alternative would be possible in the consultation process. The preferred alternative would establish a NEP for all of Arizona and New Mexico and is intended to lessen the Act's regulatory prohibitions associated with managing falcons and their habitat. The authorities and directives for maintaining and restoring falcon habitat would continue to be part of all Federal agencies' regulations and policies under section 7(a)(1) of the Act. There have been very few formal consultations conducted on grazing, energy development, and military operations for the falcon in New Mexico and Arizona. In most cases, reasonable and prudent measures have concentrated on surveys and research on the falcon and its habitats, and not many changes were required in the agencies' proposed actions (Lewis 2004). By far the great majority of section 7 consultations on falcons in Arizona and New Mexico have been conducted through informal consultation because the proposed actions already contained sufficient conservation and avoidance measures to avoid any adverse effects. In most cases, this was unproblematic because no falcons occurred in the action area. Conservation measures by Federal agencies for the falcon would still be required under 7(a)(1) of the Act, although species-specific measures for the falcon may decrease somewhat if consultation is not focused on this species. For all of the reasons described above, we would not expect there to be a

significant change in land-use practices involving grazing, energy development, and military operations from the current condition under this alternative.

Designating the reintroduced population of falcons as a NEP should not significantly change current Federal land-use practices on National Wildlife Refuges and National Parks. Because falcons are treated as threatened in these areas, consultation under section 7(a)(2) is required for Federal projects that may affect listed species. However, we expect falcon reintroduction to be compatible with the majority of current land use practices (Burnham et al. 2002; Bond 2005; Jenny 2005). Therefore, we do not expect significant impacts to land use practices.

4.2.2 Recreation. Under this alternative, we would expect an increase in opportunities for bird watchers to observe falcons without significant change in other forms of recreation. Use of off-road vehicles (ORV) may be affected if land owners choose to implement ORV restrictions around hack sites; however, the Service would not be able to require these restrictions under Alternative B. Selection criteria for hack sites would include prioritization based in part on areas of minimal human activity.

4.2.3 Biotic. We expect that this alternative would result in the establishment of a self-sustaining, resident falcon population that would contribute to the recovery of this subspecies by the predicted timeframe in the Recovery Plan of between 2010 and 2030 (Service 1990). Falcons prey on grassland birds, insects, and small mammals. The density of falcons expected as a result of this alternative is not expected to be high enough to substantively impact other birds, small game and non-game mammals, reptiles, and insects. Hack towers, and housing hack site attendants are not anticipated to significantly impact any natural resources. Hack towers may be attractive to avian predators such as great-horned owls, ravens, and hawks. However, we do not anticipate this to be a significant new issue because there are already other artificial perches in most areas, such as telephone poles. Furthermore, during reintroductions, hack-site attendants would be present to document and discourage predator use of the hack towers. If the presence of a hack tower did attract predators to the degree that the local biota may be significantly impacted, then remedial action (e.g., tower removal, harassing predators) would be implemented. Due to the low densities of falcons, no adverse impacts to threatened or endangered species would be anticipated.

4.2.4 Aesthetic. We anticipate that naturalists, bird watchers, and other recreationists would view the reestablishment of the falcon as an improvement in the aesthetic qualities of the Chihuahuan Desert. Hacking towers may be considered a visual intrusion, but they will be positioned to blend into the landscape, placed on property at the discretion of the landowner, and removed when no longer needed.

4.2.5 Social and Economic. The Service and cooperators identified issues and concerns associated with falcon reintroductions through NEPA scoping and two public comment periods. The reintroductions have also been discussed with potentially affected State agencies and some private landowners wishing to have falcons reintroduced on their properties. Affected State agencies, landowners, and land managers have indicated support for the reintroduction, provided the falcon experimental population is established as a NEP, and land-use activities in the NEP area are not constrained without the consent of affected landowners.

Including the entire States of Arizona and New Mexico in the NEP would provide a more effective recovery strategy for the falcon by providing an additional level of assurance to land managers that might otherwise not support the falcon reintroduction effort. For the Service to succeed with this reintroduction program, we would need the support of the land managers within both States. Including the entire States of Arizona and New Mexico in the NEP would provide assurances to private and public land managers outside the Chihuahuan Desert grassland that normal activities would not be impacted by falcon reintroductions. However, as stated above, we do not believe that falcons would actually become resident outside their historical range and habitats. Furthermore, the 10(j) designation and supporting 4(d) rule would cover both private and public lands in New Mexico and Arizona, so preparing Safe Harbor Agreements with private landowners would not be necessary. We expect that this reintroduction would be compatible with current or planned human activities in the NEP area (Burnham et al. 2002). There has been only one reported conflict between human activities and falcons in Texas, where 1,142 falcons have been released over the course of 20 years (Burnham et al. 2002; Bond 2005; Jenny 2005; Robertson 2006), and that issue (use of pesticides near hack sites) was resolved in the early 1990s. Implementation of the preferred alternative is not anticipated to negatively impact the social and economic sectors of the action area because of the flexibility inherent to the NEP and the lack of restrictions to the human environment. There may be an increase in bird watchers in the action area, and hack-site attendants and birdwatchers can be expected to contribute to the economy of small towns near the release sites.

4.2.6 Cultural Resources. The only possibility for impacting cultural resources in this alternative would be during the construction of hack towers. When locations of individual hacking towers are selected, surveys will be conducted for SHPO compliance. If it is determined that placement of the hack tower would cause impacts to cultural resources, the hack tower would be relocated to an area that would avoid impacts to cultural resources.

4.3 Effects of Alternatives C, D, and E

The other alternatives to the proposed action include: 1) Alternative C: Reintroduce falcons into suitable habitat in New Mexico, with designation of falcons in all of Arizona and most of New Mexico, except Hidalgo, Grant, and Luna counties, as a NEP; 2) Alternative D: Reintroduce falcons into suitable habitat in New Mexico with Safe Harbor Agreements; and 3) Alternative E: Reintroduce falcons into suitable habitat in New Mexico.

Because Alternative C would also result in the designation of a NEP, although in a smaller area, the minimal effects to the human environment would be similar to those from Alternative B. Similarly, the minimal effects from Alternatives D and E would be similar to Alternative A because applicability of section 7(a)(2) would be the same. Therefore, none of the effects of Alternatives C, D, and E would be significant impacts to the human environment.

4.4 Cumulative Effects.

Cumulative Regulations prepared by CEQ for implementing NEPA require Federal agencies to analyze and disclose effects that result from incremental impact of an action "when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can

result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

At this level of analysis and the uncertainty of the locations of the potential activities, it is difficult to define the functional, temporal, and spatial relationships between potential activities and other past, present, and reasonably foreseeable future actions. Therefore, past, present, and potential reasonably foreseeable future actions are addressed generally here. By comparing the direct and indirect impacts of the proposed action with the potential effects of other actions, the relative contribution of the proposed action to the cumulative impact or the effect that other actions may have on the ability to achieve the proposed action may be estimated. Major past, present, and potential reasonably foreseeable future actions in the action area are briefly described below.

Past Actions

- Population Change in the Action Area. From 1990 to 2000, there was a 40 percent increase in population in Arizona, and a 20.1 percent increase in population in New Mexico (U.S. Census Bureau 2006).

- Mineral leasing. Within the action area in New Mexico, there are approximately 2,042,200 ac (826,449 ha) of lands that are non-discretionarily closed to mineral leasing for military, recreation and preservation, and protective purposes. Within BLM lands in New Mexico, approximately 46,047 ac (18,635 ha) of land are non-discretionarily closed to mineral leasing, and approximately 17,673 ac (7,152 ha) of land currently are discretionarily closed to mineral leasing.

- Livestock grazing and rangeland improvements. Ranching and livestock grazing have been predominant land uses dating back to the 1880s when railroads arrived in the territory. Historically, grazing on public land has been authorized, and numerous rangeland improvements, such as fencing and watering sources, have been developed.

- Habitat fragmentation. Encroachment of desert scrub into grasslands has been occurring over the past 80 to 90 years. This shift has been attributed to a combination of climatic change, introduction of roads, intensive livestock grazing, and disruption of naturally occurring fires (BLM 2004).

- Copper Flat Mine. Copper has been pursued in the Copper Flats area northwest of Hillsboro, New Mexico, since the mid-1950s, beginning with a small copper leaching operation and exploration. Exploration continued into the 1970s when sufficient reserves were defined to begin development. In 1982, an open pit copper mine was developed and operated. Operation continued intermittently until 1986.

- Navajo Pipeline. The Navajo Pipeline is a 12.75-inch-diameter pipeline that delivers petroleum products from the Navajo Refinery in Artesia, New Mexico, to El Paso, Texas. The pipeline crosses through Otero County and across Otero Mesa.

- Diamond Shamrock Pipeline. The Diamond Shamrock Pipeline is a 10-inch-diameter petroleum products pipeline that parallels the Navajo Pipeline through Otero County, New Mexico.

Present Actions

- Livestock grazing and rangeland improvements. Existing authorizations for livestock grazing and rangeland improvements occur on public land throughout the action area.

- Habitat fragmentation. Authorizations resulting in removal of vegetation and possible ongoing impacts from past habitat fragmentation continue to affect plant and wildlife habitat.

- Bennett Ranch Gas Exploration, Otero County. Existing lands have been leased in this area and exploration activities have begun.

- Otero Platform Geophysical Exploration. Notices of intent to explore for fluid mineral resources have been approved in this area.

Reasonably Foreseeable Future Actions

- Population Change in the Action Area. From 2005 to 2025, there is projected to be a 44 percent increase in population in Arizona (Arizona Department of Economic Security 1997), and a 27 percent increase in population in New Mexico (Bureau of Business and Economic Research 2004).

- BLM Actions per Year. BLM estimates that there are approximately 356 ac (144 ha) disturbed each year on BLM lands in New Mexico due to miscellaneous actions (BLM 2003).

- Resource Management Plan Amendment/Final Environmental Impact Statement for New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management. These standards describe conditions needed for healthy sustainable public rangelands and provide the measure of resource quality, condition, and function upon which the health of public land will be assessed. Changes to existing grazing practices may result to attain the new standards for public land health, based on the need to retain the integrity of the soil and the continued sustainability of ecological processes (BLM 2000).

- Spaceport Initiative. Private industry currently is evaluating the opportunity to construct a spaceport or assembly site for reusable launch vehicles. The State of New Mexico is focusing on a 27-square-mile site for the project located near Upham on the border of Sierra and Dona Ana counties. A Draft Environmental Impact Statement was completed for the Southwest Regional Spaceport in July 1997, as required as part of the process for licensing by the U.S. Department of Transportation and Federal Aviation Administration.

- BLM mineral leasing in New Mexico. The cumulative impacts for mineral leasing activities by BLM in New Mexico are anticipated to be minimal for most resources over the 10-year planning time frame of their Resource Management Plan Amendment for Federal Fluid Minerals Leasing and Development in Sierra and Otero counties (BLM 2005). This is due to the limited nature of expected surface disturbance, unless a substantial amount of development were to occur in an area that has sensitive resource concerns. Potential cumulative impacts may be anticipated to occur to visual resources, wildlife habitat, groundwater levels, surface water quality, and socioeconomic resources. To mitigate this impact, BLM has protected approximately 35,790 ac (14,484 ha) of highly suitable falcon habitat in their planning area by closing it to mineral leasing. Because of the open and undeveloped landscape within BLM's land-management area, the potential exists for cumulative visual impacts if fluid mineral development occurs in visual proximity to other past, present, or reasonably foreseeable future actions. These types of cumulative impacts may be mitigated through site selection for mineral leasing and other mitigation measures proposed by BLM (BLM 2003; 2005).

  The volume of road development proposed by BLM in New Mexico is not large relative to the existing road network; however, the density or location of new access may have a cumulative effect on a previously undisturbed area. Although the associated road networks would not be particularly dense, the cumulative direct and indirect effects may be notable in terms of habitat fragmentation for larger wildlife. Although the water requirements for fluid minerals development are not anticipated to cause significant impacts, the other water demands such as irrigation and domestic needs due to population growth potentially could make even a small water demand a burden to the water system. Declining water levels are of concern to residents of the area. However, fluid minerals development on non-Federal land is not expected to greatly increase the water supply demands by BLM by more than twofold. None of the other potential projects are believed to impact the supply of groundwater resources.

  Development of hydrocarbons or geothermal fluids could produce positive primary and secondary effects on local economies through employment and purchases of goods and services, as well as generate royalties and tax revenue for State and local governments. The magnitudes, however, would be small, based on the level of potential for fluid mineral resources; thus, the total positive benefits are not anticipated to produce a significant impact. As a result, adverse impacts on communities that might be associated with stress from rapid growth is not anticipated as a long-term significant impact.

Proposed Action

Effects of the proposed action on most resource areas would generally consist primarily of the potential for minor additions of discretionary section 7(a)(1) conservation measures to conserve and/or improve falcon habitat. These potential improvements are not likely to result in substantial cumulative effects, when added to the effects of the land management plans and

policies described above. We would also expect there could be a slight decrease in suitable habitat available for falcon recolonization due to the reduced focus of section 7(a)(2) consultations on the falcon. However, this slight reduction would not preclude falcon recovery because there is ample suitable habitat available in the analysis area that should not be impacted by management actions, and falcons are generally compatible with current land use practices.

5.0 CONCLUSION OF ENVIRONMENTAL ASSESSMENT

This EA was intended to assist the Service in determining how to reestablish the falcon in suitable habitat in Chihuahuan Desert grasslands within their historical range in New Mexico and Arizona. The Service has decided that the environmental consequences of any of the alternatives would not be significant, therefore, we have prepared a Finding of No Significant Impact. The proposed action does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102(2)(c) of NEPA, and therefore an environmental impact statement is not required.

The Service has chosen Alternative B, the Preferred Alternative, to use in implementing the proposed action. This alternative will maximize the efficiency in achieving our Purpose and Need by facilitating landowner cooperation and allowing reintroduction of large numbers of falcons to achieve recovery within the timeframe expected in the Recovery Plan.

Alternative A, the No Action Alternative, would not meet the Purpose and Need of the proposed action because falcon recovery would not occur by the time period expected in the Recovery Plan of between 2010 and 2030 (Service 1990), and may not occur for a long time after that or not at all. We believe this because of the near absence of any falcons in either State for over 50 years, even though populations exist in Mexico and Texas, and because these areas are not like to be recolonized by birds from other locations. The supporting data for this conclusion follows:

Large areas of the southern New Mexico habitats most capable of supporting individual or breeding pairs of falcons have been formally surveyed for the presence of falcons during the past 10 years, and the recent falcons sighted in the action area appear to be transients and there has not been breeding activity at the one known site for several years.

Significant recolonization of habitats in Arizona and New Mexico by naturally occurring birds in Chihuahua would likely take decades, if it occurred at all, because the reproductive rate of the falcons in Chihuahua has typically been low. The low reproductive rate is possibly due to the effects of extended drought, and this population has not been expanding (Burnham et al. 2002; Jenny and Heinrich 2004). In addition, the majority of the breeding pairs in Chihuahua are clustered in close proximity to one another, but most are approximately 120 to 135 mi (193 to 217 km) away from the southern New Mexico border (Howard 2006c). It is also unlikely that individual captive-bred falcons or their progeny from west Texas would disperse into New Mexico. The majority of falcon reintroductions in west Texas are further than 120 mi (193 km) from suitable habitat in New Mexico, and tall mountains separating the two regions may provide an obstacle to falcon migration. The Guadalupe Mountains span the border between

Texas and New Mexico and rise to heights of 8,749 ft (28,704 m). Falcon reintroductions in west Texas only began in 2002, and as expected, there has not yet been any documented breeding by these reintroduced falcons. Furthermore, there have been no detections in New Mexico of falcons that were banded at west Texas reintroduction sites, and all of those reintroduced falcons should be banded.

Alternatives C, D, and E would not effectively achieve our Purpose and Need because available sites for reintroduction would decline as public and agency support for falcon reintroductions waned. If the falcons were treated as fully endangered under the Act, even if only in a portion of the action area, public and agency support for reintroductions would decline due to dislike for land-use restrictions. Public comments submitted to the Service indicate that the affected State agencies, landowners, and land managers would support falcon reintroductions only if the falcon experimental population is established as a NEP, and land-use activities in the NEP area are not constrained without the consent of affected landowners. Therefore, these alternatives would not accomplish the Purpose and Need within the expected time frame because there would be opposition to reintroductions of large numbers of falcons. Private livestock managers and energy developers who rely on public lands for their livelihood would likely oppose falcon reintroductions on public lands, in addition to private lands. Recreationists who could incidentally harm or harass falcons would also likely oppose falcon reintroductions on private and public lands.

6.0 LIST OF PREPARERS

New Mexico Ecological Services Field Office, Albuquerque, New Mexico
Region 2, Regional Office, Ecological Services, Albuquerque, New Mexico

7.0 AGENCIES AND PERSONS CONTACTED

7.1 Consultation and Coordination

After the scoping meetings, the NMESFO participated in meetings of an Aplomado Falcon Working Group that collected and analyzed information about reestablishing falcons in New Mexico and Arizona. The Working Group included representatives from the New Mexico Department of Game and Fish, The Peregrine Fund, Turner Endangered Species Fund, DOD, BLM, and several Service offices. On February 9, 2005, a proposed rule was published in the Federal Register to reintroduce falcons into their historical habitat in southern New Mexico for the purpose of establishing a viable resident population in New Mexico and Arizona. Under this proposal, the falcon would be re-established under section 10(j) of the Act and classified as a NEP. The geographic boundary of the proposed NEP would include all of New Mexico and Arizona. The availability of the draft EA was also announced and the first of two public comment periods was opened until April 11, 2005. A second public comment period followed from September 16 to November 15, 2005, which included our request for comments on the draft monitoring plan. This monitoring plan would assist the Service to evaluate the release program and provide guidelines for falcon monitoring efforts in New Mexico and Arizona. The Service sent announcements about the two comment periods to more than 140 interested parties, including private individuals and groups, Tribes, and local, county, State, and Federal agencies in New Mexico and Arizona (see section 7.3 for the full list). Two public hearings

were conducted in New Mexico during the second comment period, on October 11 in Las Cruces and October 13 in Albuquerque.

In addition, in accordance with Secretarial Order 3206, American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Act (June 5, 1997); the President's memorandum of April 29, 1994, Government-to-Government Relations with Native American Tribal Governments (59 FR 22951); Executive Order 13175; and the Department of the Interior's requirement at 512 DM 2, we have notified the Native American Tribes within Arizona and New Mexico about the proposed action. They have been advised through verbal and written contact, including informational mailing from the Service. Information was also presented at the Native American Fish and Wildlife Society meeting in New Mexico in 2003 (Murphy 2003). Furthermore, the potential reintroduction area for falcons in New Mexico does not overlap with any Tribal lands, and we do not expect falcons to move out of their preferred habitats.

7.2 Issues and Concerns

The Service and cooperators identified issues and concerns associated with falcon reintroductions through the NEPA scoping and two public comment periods. The alternatives have also been discussed with potentially affected State agencies and some private landowners wishing to have falcons reintroduced on their properties. All comments from the five scoping meetings, two public comment periods, and two public hearings have been analyzed and either incorporated into the final rule, EA, or monitoring plan, or responded to in the final rule or final EA. The majority of comments were responded to in the final rule, which is available by calling (505) 346-2525, or from our Web site at http://www.fws.gov/ifw2es/NewMexico/. Comments that specifically addressed the draft EA were either incorporated into the final assessment or are responded to in Appendix A. No significant new issues were identified during the two public comment periods in 2005 that differed substantively from those raised during scoping in 2003.

7.3 List of Agencies and Persons Contacted

Peer Reviewers
Dr. Steven R. Beissenger, Professor of Conservation Biology, Department of Environmental Science, Policy, & Management, University of California at Berkeley, California
Dr. John M. Marzluff, Associate Professor, Division of Ecosystem Sciences, University of Washington, Seattle, Washington
Dr. W. Grainger Hunt, Senior Scientist, The Peregrine Fund, McArthur, California
U.S. Congress, Washington Offices
Sen. John McCain, SR-241 Russell SOB, Washington, DC 20410
Sen. Jon Kyl, SH-723 Hart SOB, Washington, DC 20510
Congressman Jim Kolbe, 2266 Rayburn House Office Bldg, Washington, DC 20515
Congressman Ed Pastor, 2465 Rayburn HOB, Washington, DC 20515
Congressman J.D. Hayworth, 2434 Rayburn HOB, Washington, DC 20515
Congressman Stump, 211 Cannon HOB, Washington, DC 20515
Senator Pete V. Domenici, SH-328 Hart SOB, Washington, DC 20510
Senator Jeff Bingaman, SH-703 Hart SOB, Washington, DC 20510
Senator Pete V. Domenici, 201 Third St, Ste 700, Albuquerque, NM 87102
Senator Jeff Bingaman, 201 Third St, Ste 130, Albuquerque, NM 87102
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District 2 Representative Steve Pearce, 400 N Telshor, Ste E, Las Cruces, NM 88005
District 3 Representative Tom Udall, 811 St. Michaels DR, Ste 104, Santa Fe, NM 87505
U.S. Congress, District Offices
Sen. John McCain, 2400 E. Arizona Biltmore Circle Ste 1140, Phoenix, AZ 85016
Sen. Jon Kyl, 2200 E. Camelback Rd, Ste 120, Phoenix, AZ 85016
Congressman J.D. Hayworth, 14300 N. Northsight Blvd, Ste 101, Scottsdale, AZ 85260
Congressman Stump, 230 N. First Ave, 2001 Federal Bldg, Phoenix, AZ 85025
Congressman Ed Pastor, 411 N. Central Ave, Ste 150, Phoenix, AZ 85004
Congressman Jim Kolbe, 1661 N. Swan Rd, Ste 112, Tucson, AZ 85712
State Officials
Governor Jan Napolitino, Office of the Governor, 1700 W. Washington St, Phoenix, AZ 85007
Governor Bill Richardson, State Capitol, Room 400, Santa Fe, NM 87503
Lt. Governor Diane Denish, State Capitol, Room 417, Santa Fe, NM 87503
Natural Resources Committee, Arizona State House of Representatives, 1700 W. Washington, Room 312, Phoenix, AZ 85007

State Officials, Continued
New Mexico State Senator Rod Adair, P.O. Box 96, Roswell, NM 88202
New Mexico State Senator Timothy Jennings, P.O. Box 1797, Roswell, NM 88202
New Mexico State Representative Daniel R. Foley, P.O. Box 959, Roswell, NM 88202
New Mexico State Representative David M. Parsons, 607 Golondrina, Roswell, NM 88201
New Mexico State Senator Ben D. Altamirano, State Capitol, Santa Fe, NM 87503
New Mexico State Senator Joseph A. Fidel, State Capitol, Santa Fe, NM 87503
New Mexico State Senator Don Kidd, State Capitol, Santa Fe, NM 87503
New Mexico State Senator Carroll Leavell, State Capitol, Santa Fe, NM 87503
New Mexico State Senator Leonard Lee Rawson, State Capitol, Santa Fe, NM 87503
New Mexico State Senator Diana J. Duran, State Capitol, Santa Fe, NM 87503
New Mexico State Senator Cynthia Nava, State Capitol, Santa Fe, NM 87503
New Mexico State Senator John Arthur Smith, State Capitol, Santa Fe, NM 87503
New Mexico State Representative John A. Heaton, State Capitol, Santa Fe, NM 87503
New Mexico State Representative Don Tripp, State Capitol, Santa Fe, NM 87503
New Mexico State Representative Gloria C. Vaughn, State Capitol, Santa Fe, NM 87503
New Mexico State Representative Terry Marquardt, State Capitol, Santa Fe, NM 87503
New Mexico State Representative W.C. Williams, State Capitol, Santa Fe, NM 87503
New Mexico State Representative Joe M. Stell, State Capitol, Santa Fe, NM 87503
Senator Mary Jane Garcia, Box 22, Dona Ana, NM 88032
Senator Gay G. Kernan, 613 Zia, Hobbs, NM 88240
Representative Mary Kay Garcia, 5271 State Highway 28, Las Cruces, NM 88005
Representative Diane Miller Hamilton, 4132 North Gold Street, Silver City, NM 88061
Representative William Boykin, 3035 Hillrise Dr, Las Cruces, NM 88011
Representative Dona G. Irwin, 420 South State, Deming, NM 88030
Representative Antonio Lujan, 429 1/2 San Pedro, Las Cruces, NM 88001
Representative Andy Nunez, Box 746, Hatch, NM 87937
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Representative Earlene Roberts, Box 39, Lovington, NM 88260
Representative Paul J. Taylor, Box 133, Mesilla, NM 88046
Representative Mary Kay Papen, 904 Conway Ave, Las Cruces, NM 88005
Representative Avon W. Wilson, Box 381, Roswell, NM 88202
Senator Marsha Arzberter. 1700 W Washington, Room 313, Phoenix, AZ 85007
Senator Timothy S. Bee, 1700 W. Washington, Room 212, Phoenix, AZ 85007
Senator Jack A. Brown, 1700 W. Washington, Room 213, Phoenix, AZ 85007
Representative Manny Alvarez, 1700 W. Washington, Room 318, Phoenix, AZ 85007
Representative Jake Flake, 1700 W. Washington, Room 221, Phoenix, AZ 85007
Representative Randy Graf, 1700 W. Washington, Room 217, Phoenix, AZ 85007

State Officials, Continued
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Cruz Salas, Chairman, Gila County Supervisors, 1400 E Ash St, Globe, AZ 85501
Haynes Moore, Chairman, Graham County Supervisors, 800 Main St, Safford, AZ 85546
Donald R. Slacey, Chairman, Greenlee County Supervisors, P.O. Box 908, Clifton, AZ 85533
Robert Damon, Chairman, Santa Cruz County Supervisors, 2150 N Congress Dr, Nogales, AZ 85621
Raul Grijalva, Chairman, Pima County Supervisors, 130 W Congress, 11th Floor, Tucson, AZ 85701
Eddy County Commissioners, 101 West Greene St, Carlsbad, NM 88220
Grant County Commissioners, Grant County Courthouse, Silver City, NM 88061
Hidalgo County Commissioners, Hidalgo County Courthouse, 300 South Shakespeare St, Lordsburg, NM 88045
Lea County Commissioners, Lea County Courthouse, Lovington, NM 88260
Dona Ana County Commissioners, Dona Ana Courthouse, 251 West Amador Ave, Las Cruces, NM 88005
Otero County Commissioners, Otero County Courthouse, Alamogordo, NM 88310
Chaves County Commissioners, Chaves County Courthouse, P.O. Box 1817, Roswell, NM 88201
Socorro County Commissioners, Socorro County Courthouse, Socorro, NM 87801
Lincoln County Commissioners, Lincoln County Courthouse, Carrizozo, NM 88301
Sierra County Commissioners, Sierra County Courthouse, 300 Date St, Truth or Consequences, NM 87901
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Arizona State Land Department, 1616 W Adams, Phoenix, AZ 85007
New Mexico Cooperative Fish & Wildlife Research Unit - New Mexico State University, Box 30003, Dept. 4901, Las Cruces, NM 88003
New Mexico Department of Agriculture, P.O. Box 30005, Dept. 3189, Las Cruces, NM 88003
New Mexico Department of Game and Fish, P.O. Box 25112, Santa Fe, NM 87504

Federal, State, County, and Other Entities, Continued
New Mexico Environment Department, P.O. Box 26110, Santa Fe, NM 87592
New Mexico Farm and Livestock Bureau, 11320 Prospect NE, Apt C, Albuquerque, NM 87112
New Mexico Highway and Transportation Department, P.O. Box 1149, Santa Fe, NM 87504
New Mexico Minerals and Natural Resources Department, P.O. Box 1948, Santa Fe, NM 87504
New Mexico Natural Heritage Program, 2500 Yale Blvd SE, Ste 100, Albuquerque, NM 87131-1091
New Mexico State Director, Energy, Minerals and Natural Resources Department, 2040 Pacheco St, Santa Fe, NM 87505
New Mexico State Land Commissioner, New Mexico State Lands Office, P.O. Box 1148, Santa Fe, NM 87504
New Mexico State Land Office, P.O. Box 1148, Santa Fe, NM 87504
Coalition of Arizona/New Mexico Counties, P.O. Box 125, Glenwood, NM 88039
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Colfax County CES, P.O. Box 370, Raton, NM 87740
Curry County Manager, 700 North Main Street, #10, Clovis, NM 88101
Curry County CES, 818 Main St, Clovis, NM 88101
DeBaca County Chairman, Box 347, Fort Sumner, NM 88119
DeBaca County CES, P.O. Drawer E, Fort Sumner, NM 88119
Eddy County Manager, 101 W. Greene, Ste 225, Carlsbad, NM 88220
Eddy County CES, 1304 W. Stevens, Carlsbad, NM 88220
Guadalupe County CES, 450 Parker Ave, Santa Rosa, NM 88345
Guadalupe County Manager, Guadalupe County Courthouse, 420 Park Avenue, Santa Rosa, NM 88435
Harding County Commission, Harding County Courthouse, Box 1002, Mosquero, NM 87733
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Lincoln County Manager, Box 711, Carrizozo, NM 87801
Lincoln County CES, P.O. Box 217, Carrizozo, NM 88301
Mora County Manager, Box 580, Mora, NM 87732
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Roosevelt County Manager, Roosevelt County Courthouse, Portales, NM 88130
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Socorro County CES, 214 Neel Ave NW, Socorro, NM 87801
Torrance County Manager, Box 48, Estancia, NM 87016
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Union County Administrator, Box 340, Clayton, NM 88415
Union County CES, County Courthouse, P.O. Box 428, Clayton, New Mexico 88415
Buenos Aires National Wildlife Refuge, P.O. Box 109, Sasabe, AZ 85633
Bureau of Land Management - Safford District, 711 14th Ave, Safford, AZ 85546
Bureau of Land Management - Tucson Resource Area, 12661 E Broadway, Tucson, AZ 85748
Department of the Interior/Office of Environmental Affairs, P.O. Box 649, Albuquerque, NM 87103
Director, Office of Surface Mining, 625 Silver Ave SW, Ste 310, Albuquerque, NM 87102
National NEPA Manager, USDA-APHIS Wildlife Services New Mexico, 8441 Washington NE, Albuquerque, NM 87113
Federal Highway Administration, US Courthouse Room 117, Santa Fe, NM 87504
District Engineer, US Army Corps of Engineers, 4101 Jefferson Plaza NE, Albuquerque, NM 87109
State Director, Bureau of Land Management, P.O. Box 1449, Santa Fe, NM 87504-1449
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Regional Director, US Forest Service, Southwest Region, 517 Gold Ave SW, Albuquerque, NM 87102
San Bernardino National Wildlife Refuge, P.O. Box 3509, Douglas, AZ 85607
State Conservationist, USDA-NRCS, 6200 Jefferson Plaza NE, Albuquerque, NM 87109
Superintendent, National Park Service, Southwest Regional Office, P.O. Box 728, Santa Fe, NM 87505-0728
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Federal, State, County, and Other Entities, Continued
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Bureau of Indian Affairs/Tribes, New Mexico
Acting Executive Director, Pueblo Office of Environmental Protection, All Indian Pueblo Council, P.O. Box 3256, Albuquerque, NM 87190
President, Mescalero Apache Tribe, P.O. Box 176, Mescalero, NM 88340
Superintendent, Bureau of Indian Affairs, Southern Pueblos Agency, P.O. Box 1667, Albuquerque, NM 87103
Natural Resources Manager, BIA/Mescalero Agency
Industry Groups
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Deming Soil & Water Conservation District, 405 E Florida, Deming, NM 88030
Grant Soil & Water Conservation District, 2610 Silver St, Silver City, NM 88061
New Mexico Cattle Growers Association, P.O. Box 7517, Albuquerque, NM 87194
Otero County Farm and Livestock Bureau, P.O. Box 61, Cloudcroft, NM 88317
San Rafael Valley Association, Box 275, Patagonia, AZ 85624
Southwest New Mexico Council of Governments, P.O. Box 2157, Silver City, NM 88062
Special Interest Groups
Albuquerque Wildlife Federation, P.O. Box 1234, Albuquerque, NM 87103
Arizona Wildlife Foundation, 644 N Country Club Dr, Ste E, Mesa, AZ 85201
Carson Forest Watch, Box 15, Llano, NM 87543
Center for Biological Diversity, P.O. Box 53166, Pinos Altos, NM 88053
Center for Biological Diversity, P.O. Box 710, Tucson, AZ 87502

Special Interest Groups, Continued
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Defenders of Wildlife, P.O. Box 40709, Albuquerque, NM 87196
Forest Conservation Council, 140 Chamiso Lane, Santa Fe, NM 87505-5745
Forest Guardians, 1411 Second Street, Santa Fe, NM 87505
Forest Guardians, 312 Montezuma, Ste A, Santa Fe, NM 87501
Grand Canyon Trust, 3100 N Fort Valley Rd #8, Flagstaff, AZ 86001
Huachuca Audubon Society, P.O. Box 63, Sierra Vista, AZ 85636
Malpai Borderlands Group, 6226 Geronimo Trail/P.O. DR #3536, Douglas, AZ 85608
National Audubon Society, P.O. Box 9314, Santa Fe, NM 87504
New Mexico Wilderness Alliance, P.O. Box 13116, Albuquerque, NM 87192
Sierra Club, 1305 Copper NE, Albuquerque, NM 87108
Sierra Club, Southwest Office, 516 E Portland St, Phoenix, AZ 85004
Southwest Environment Center, 1494 A. South Solano, Las Cruces, NM 88001
Southwest Society of American Foresters, 803 W Colt, Payson, AZ 85541
The Arizona Nature Conservancy, 1510 E Ft. Lowell Rd, Tucson, AZ 85719
The Gila Monster Group, P.O. Box 939, Pima, AZ 85543
The Nature Conservancy, New Mexico, 212 E. Marcy, Ste 200, Santa Fe, NM 87501
Tucson Audubon Society, 300 E University Blvd, Ste 120, Tucson, AZ 85705
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8.0 REFERENCES CITED

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Appendix A: Public Comments on NEPA Compliance

(1) Comment: The draft EA violates NEPA by failing to take a hard look at, analyze, and disclose the environmental impact of the proposal.

Our Response: In the final EA, we re-analyzed the proposed action and its alternatives, disclosed our re-analysis, and reached the same conclusion as in the draft EA: There will be no significant impacts from the proposed action or any of its alternatives on any resource in the affected environment. Please see Section 4.0: "Assessment of Effects" for our re-analyses of the proposed action and its alternatives.

(2) Comment: The draft EA violates NEPA Section 42 U.S.C. § 4332(E) by failing to consider the designation of reintroduced falcons as essential among the range of reasonable alternatives.

Our Response: We believe the EA analyzed a full range of reasonable alternatives, including Alternative E: Reintroduce falcons into suitable habitat in New Mexico without Safe Harbor Agreements or a 10(j) designation. As described in the final rule and EA, the option of designating the falcon as essential had already been dismissed due to the existence of other established populations and the anticipation that other populations would become established through reintroduction efforts. We also dismissed this option because of public comments that it would be a disincentive for landowners to participate in reintroductions due to real or perceived restrictions on land-use. The falcon population would be designated as NEP because: 1) There are established populations in Mexico and a rapidly increasing population in south Texas; 2) reintroductions would continue in west Texas; 3) the Boise, Idaho, captive population is producing enough offspring to maintain breeding stock and provide falcons for reintroductions; 4) the possible failure of this action would not appreciably reduce the likelihood of survival of the subspecies in the wild; and 5) the NEP designation lessens land-use restrictions associated with the Act, which makes re-establishment of falcons in New Mexico and Arizona less controversial to land managers and should result in a larger number of reintroduction sites. Therefore, the NEP should be the fastest and most effective way to successfully re-establish a falcon population in New Mexico and Arizona.

(3) Comment: The EA should include a population summary of breeding falcons in the wild population of south Texas and the reintroduced population in west Texas.

Our Response: Please see Section 1.3.1, "Background Information on the Northern Aplomado Falcon" in the EA for a summary of falcons in Texas.

(4) Comment: The EA does not recognize or analyze the impacts of removing consultation requirements and conservation measures on other wildlife that co-occur in grassland habitat.

Our Response: The Service analyzed the effects of the NEP under Alternative B in the EA, including effects on biota and on land uses that can impact other wildlife. Please see Sections 4.2.1, "Land Uses" and 4.2.3, "Biotic" of the EA. In these sections, we described that the authorities and directives for maintaining and restoring falcon habitat will remain part of all Federal agencies' regulations and policies under their section 7(a)(1) responsibilities, which

require all Federal agencies to use their authorities to further the purposes of the Act. In addition, due to the paucity of falcons in the NEP area, section 7(a)(2) was not providing significant conservation protection to this subspecies.

(5) Comment: The EA dismisses the loss of recreational benefits resulting from replacement of high-valued wild falcons with released caged birds.

Our Response: We expect that only a very small percentage of the public would view reintroduced falcons as "released caged birds." These would likely be bird watchers who would not want to add a reintroduced falcon to their birding lists. From the public comments we received, we believe that the great majority of the public would observe these falcons with interest and enthusiasm, and they would be expected to be indistinguishable from wild falcons in appearance and behavior except for a possible leg band.

(6) Comment: The EA ignores the geographical separation of the coastal population of falcons and the high desert population.

Our Response: We assume that this comment refers to the distance between the source of the founders of the captive population in Chiapas, Tabasco, and Veracruz, Mexico, and the Chihuahuan Desert areas where reintroductions are proposed under section 10(j). The available genetic data do not indicate any genetic divergence among widely separated falcons. Falcons have great dispersal abilities and warm-blooded physiology. Both of these attributes would tend to work against genetic differentiation, so that based on the biology of falcons, genetic differentiation would not be expected to be present on the scale of the distances involved here. Furthermore, all of these populations are classified within the same subspecies, which also indicates that taxonomically significant differences are not known to be present.

(7) Comment: The EA indicates that only private lands will be used as release sites. Falcon releases should occur on State, Federal, military, and private lands because all of these areas are essential to the recovery of the species.

Our Response: According to Section 1.4.3, falcons would be released on private lands initially; however, additional potential reintroduction sites on State and Federal lands would be analyzed and used as necessary and appropriate in the future. This section of the EA has been updated to clarify this point.

(8) Comment: A fundamental flaw in the EA is a discussion of the environmental consequences of the proposed rule. Instead of considering the impact of this proposal on the environment, the EA focuses on the potential economic impacts. This does not meet the spirit and intent of NEPA.

Our Response: No significant impacts to the natural environment are expected, as summarized in section 4.0 of the EA. Under NEPA, the Service is required to analyze impacts to the "human environment," not just the natural environment. The human environment includes the natural and physical environment and the relationship of people to the environment (40 CFR

1508.14). In many cases, the best way to characterize impacts to the human environment is to utilize economic impacts.

(9) Comment: The EA should disclose that the section 7 consultation process has resulted in the minimization of further fragmentation and improvement of falcon habitat.

Our Response: For the purposes of this analysis, we believe the effects of section 7 consultation are adequately addressed throughout the EA. Please see Section 4.2.1, "Land Uses" for further details of this discussion.

(10) Comment: Flexibility with landowners should not be the primary reason to choose an alternative. The Service should also consider the ecology and conservation of the species.

Our Response: In choosing our alternative, our primary consideration was the conservation of the species, as we describe in this final rule. We believe that reintroductions conducted under a 10(j) designation will lead to the fastest recovery of the falcon in New Mexico and Arizona due, in part, to increased cooperation and partnerships with Federal and State agencies and private landowners.

(11) Comment: All release sites should be fully analyzed in a NEPA document.

Our Response: At this point, we do not know where all of our reintroduction sites in New Mexico will be located, as they will be selected over the course of many years and will be based on results from our monitoring plan and through adaptive management. We acknowledge that further NEPA analysis may be required in the future if new release sites are identified.

(12) Comment: Only 2,238,766 million acres of potential falcon habitat remain in New Mexico. This is only half of what is reported in the draft EA.

Our Response: In Section 1.3, Needs for the Action, of Section 1.1, Introduction, we have corrected the EA to state that there are approximately 2,238,766 million acres of potentially suitable falcon habitat in New Mexico.

(13) Comment: The draft EA fails to consider or disclose the environmental impacts of precluding critical habitat designation

Our Response: NEPA does not require that we evaluate every possible alternative. However, we inherently considered the tools available pursuant to the Act for recovery of the falcon in the United States. We believe that reestablishing falcons through a 10(j) rule is more beneficial to long-term falcon conservation than designation of critical habitat. While a designation of critical habitat could trigger additional consultations with the Service related to Federal activities that may adversely modify designated critical habitat; critical habitat is not a tool that provides a direct on-the-ground benefit such as a reintroduction effort pursuant to section 10(j) of the Act. Additionally, we believe that having the flexibility of the 10(j) rule is necessary for the success of this effort and to promote falcon recovery, whereas a designation

of critical habitat would harm the collaborative relationship between us and our Federal, State, and private partners.

(14) Comment: The Service relies on flawed science and deficient analysis to dismiss Alternative A and the potential for natural falcon recolonization.

Our Response: Alternative A is unaided recovery of the falcon, or the No Action Alternative. Natural, unaided falcon recolonization of New Mexico and Arizona would be dependent on dispersing falcons from Mexico, Texas, or possibly unknown nesting pairs within the United States. We do not consider the unaided recolonization of falcons in the NEP area a likely occurrence for a number of reasons. The half-century absence of falcons in Arizona and New Mexico indicates that the Chihuahua, Mexico, falcon population cannot recolonize New Mexico and Arizona with sufficient numbers to establish a population in the foreseeable future. The low fledging success in Chihuahua and lack of significant expansion of that population since observations first began in 1992 (Montoya et al. 1997, Macías-Duarte et al. 2004, Young et al. 2004, Juergens and Heinrich 2005) indicate that birds from Chihuahua are not likely to provide enough dispersers to populate New Mexico. Furthermore, the only birds that are known to be currently nesting in Texas are beyond the average dispersal distance for falcons. Natal dispersal to eventual breeding sites may be localized (Burnham et al. 2002). The longest documented falcon dispersal distance is 250 km (Burnham et al. 2002). A straight-line distance from breeding falcons near Brownsville, Texas, to Carlsbad, New Mexico, is 973 km (605 mi), much further than any documented falcon dispersal. . It is possible, though unlikely, that individual captive-bred falcons or their progeny from west Texas could disperse into the NEP area. The majority of falcon reintroductions in west Texas are farther than 193 km (120 mi) from suitable habitat in New Mexico, and tall mountains separating the two regions may provide an obstacle to falcon migration. The Guadalupe Mountains span the border between Texas and New Mexico and rise to heights of 8,749 feet. Falcon reintroductions in west Texas began in 2002, and as expected, there has not yet been any documented breeding by these reintroduced falcons. Furthermore, there have been no detections in New Mexico of falcons that were banded at west Texas reintroduction sites, and all of these reintroduced falcons should be banded.

(15) Comment: The Service violates NEPA by failing to analyze how specific mitigations will reduce the NEP.

Our Response: Based on our determination that the environment will not be significantly impacted by the proposal, we believe that mitigation measures are not necessary for this NEP. In addition, we have developed a monitoring plan for the reintroduction program and plan to evaluate the progress of the program every 5 years.

(16) Comment: The Service relies on flawed science and deficient analysis to dismiss Alternative C's proposal for a narrower experimental population area.

Our Response: Under Alternative C, the Service would designate portions of New Mexico and Arizona as a NEP, and falcons would be released into potentially suitable habitat in New Mexico. This alternative would lead to an untenable, highly complex regulatory situation that

would negate much of the conservation benefit for the falcon. Public comments strongly indicated that Alternative C would result in landowners and managers being unwilling to reintroduce falcons or have them disperse onto their lands because they would still be endangered in portions of New Mexico. Without reintroductions sites, we believe the falcon would not be likely to recover in New Mexico and Arizona in the foreseeable future. Please also see our response to comment number 27.